Inventor(s): Michael Kahn et al.
Title: METHODS AND APPARATUS FOR
SWITCHING FROM A NON-MODULE TUNING
MODE TO A MODULE TUNING MODE IN A
CABLE TELEVISION RECEIVER
Attorney Docket No.: MATP-649US

FIG. 1

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	Bits	Bytes	Format
network_info_table_section(){			
table_ID	8	1	uimsbf value 0xC2
zero	2	2	bslbf
reserved	2		bslbf
section_length	12		uimsbf
zero	3	1	bslbf
protocol_version	5		Sec. 4.4.1
first_index	8	1	uimsbf range 1-255
number_of_records	8	1	uimsbf
transmission_medium	4	1	uimsbf
table_subtype	4		uimsbf see Table 5.2
for (i=0; i<number_of_records; i++) {			
if (table_subtype==CDS) {			
CDS_record()		((5))	
}			
if (table_subtype==MMS) {			
MMS_record()		((6))	
}			
descriptors_count	8	(1)	uimsbf range 0-255
for (i=0; i<descriptors_count; i++) {			
descriptor()	*	((*))	optional
}			
}			
for (i=0; i<N; i++) {			
descriptor()	*	(*)	optional
}			
CRC_32	32	4	rpchof
}			

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FIG. 2

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	Bits	Bytes	Format
CDS_record(){			
number_of_carriers	8	1	uimsbf
spacing_unit	1	2	bslbf see Table 5.4
zero	1		bslbf
frequency_spacing	14		uimsbf range 1-16,383 units of 10 or 125kHz
frequency_unit	1	2	bslbf see Table 5.5
first_carrier_frequency	15		uimsbf range 0-32,767 units of 10 or 125kHz
}			

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FIG. 3

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	Bits	Bytes	Format
MMS_record(){			
transmission_system	4	1	uimsbf see Table 5.7
inner_coding_mode	4		uimsbf see Table 5.8
split_bitstream_mode	1	1	bslbf {no, yes}
zero	2		bslbf
modulation_format	5		uimsbf see Table 5.9
zero	4	4	bslbf
symbol_rate	28		uimsbf units: symbols per sec.
}			

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FIG. 4

	Bits	Bytes	Format
shortform_virtual_channel_table_section(){			
table_ID	8	1	uimsbf value 0xC4
zero	2	2	bslbf
reserved	2		bslbf
section_length	12		uimsbf
zero	3	1	bslbf
protocol_version	5		see Sec. 4.4.1
transmission_medium	4	1	uimsbf
table_subtype	4		uimsbf see Table 5.14
VCT_ID	16	2	uimsbf
if (table_subtype==DCM) {			
DCM_structure()	*	(*)	
}			
if (table_subtype== VCM) {			
VCM_structure()	*	(*)	
}			
if (table_subtype== ICM) {			
ICM_structure()	*	(*)	
}			
for (i=0; i<N; i++) {			
descriptor()	*	(*)	optional
}			
CRC_32	32	4	rpchof
}			

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FIG. 5

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	Bits	Bytes	Format
DCM_structure(){			
zero	4	2	bslbf
first_virtual_channel	12		uimsbf range 0-4095
zero	1	1	bslbf
DCM_data_length	7		uimsbf range 1-127
for (i=0; i<DCM_data_length; i++) {			
range_defined	1	(1)	bslbf {no, yes}
channels_count	7		uimsbf range 1-127
}			
}			

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FIG. 6

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	Bits	Bytes	Format
VCM_structure(){			
zero	2	1	bslbf
descriptors_included	1		bslbf {no, yes}
zero	5		bslbf
splice	1	1	bslbf {no, yes}
zero	7		bslbf
activation_time	32	4	uimsbf
number_of_VC_records	8	1	
for (i=0; i<number_of_VC_records; i++) {			
virtual_channel()	*	(*)	
}			
}			

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FIG. 7

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	Bits	Bytes	Format
virtual_channel(){			
zero	4	2	bslbf
virtual_channel_number	12		uimsbf range 0-4095
application_virtual_channel	1	1	bslbf {no, yes}
zero	1		bslbf
path_select	1		bslbf see Table 5.18
transport_type	1		bslbf see Table 5.19
channel_type	4		uimsbf see Table 5.20
if (application_virtual_channel) {			
application_ID	16	(2)	
} else {			
source_ID	16	(2)	
}			
if (transport_type==MPEG_2){			
CDS_reference	8	((1))	uimsbf range 1-255
program_number	16	((2))	
MMS_reference	8	((1))	uimsbf range 1-255
} else { /* non-MPEG-2 */			
CDS_reference	8	((1))	uimsbf range 0-255
scrambled	1	((1))	bslbf {no, yes}
zero	3		bslbf
video_standard	4		uimsbf see Table 5.21
zero	16	((2))	bslbf
}			
if (descriptors_included) {			
descriptors_count	8	(1)	uimsbf
for (i=0; i<descriptors_count; i++) {			
descriptor()	*	((*))	
}			
}			
}			

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FIG. 8

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Detect Tuning Module. — 302

Begin acquiring Module Tuning Data. — 304

Determine Module Quality Factor. — 306

308 — Module Quality Factor > Predetermined Threshold?

NO → Wait for Predetermined Time. — 310

YES

Present User Selectable Option soliciting User Input to switch from Non-module Tuning Mode to Module Tuning Mode. — 314

316 — User Input = Switch?

No → Wait for Predetermined Time. — 318

YES

Switch from Non-module Tuning Mode to Module Tuning Mode. — 312

FIG. 9

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_400_

Detect Tuning Module. _302_

Begin acquiring Module Tuning Data. _304_

Critical Module Tuning Data Acquired? _402_ → No → Wait for Predetermined Time. _404_

Yes

Switch from Non-module Tuning Mode to Module Tuning Mode. _312_

FIG. 10

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CABLE CHANNEL STATUS:
MODULE PRESENT   YES
MODULE CHANNELS AVAILABLE   YES

412

420

Switch to Module Tuning Mode?

422

| YES | | NO |

424

FIG. 11